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I'm going to speak about the many things going on in the international community regarding e-waste. First, I have a few slides in terms of international markets. We've touched upon it plenty of times here, but I want to give you some background on that and some context on that. Then I'll talk about international rules and activities under a couple of international treaties and conventions. One is the OECD, the Organization for Economic Cooperation and Development, and the Basel Convention. Reuse and recycling markets. Why is this an international issue? Every country has its own domestic issues with e-waste, but there are also international issues and those international issues arise from the movement of these materials around the world. Both in processed forms and unprocessed forms. Why do they move around the world?

Most reused markets are export markets. I'm talking about now for the United States. They are export markets because of reuse. Where is reuse demand? It's in developing countries. There is some market in the United States for reuse, but it's miniscule compared to that of developing countries around the world where the consumers want to buy products more cheaply. They have greater access to products and IT technology. Many recycling markets are export markets. Strong foreign demand for raw materials? The Chinese are driving copper prices and everything else. There are no U.S. smelters for copper and precious metal recovery from circuit boards. They can do it safely and economically. The remaining CRT glass furnaces are in Asia. Some people have mentioned that we used to have five or more a few years ago in the U.S. We have none now. There used to be one in Brazil. Now there are no longer any furnaces in the Americas at all. It's only in Asia. Plastic recycling markets almost all overseas, largely in China. So the materials have to move. Some of that is very positive, and some of it is negative in terms of improper things that are happening. We can debate this, but many U.S. exports are the reason we send out to other facilities. Large volumes are dismantled by hundreds of U.S. recyclers, and you've heard from quite a number of them here today. They are handling very large volumes of electronics. Many of those materials are commodity form. We've gone over that a number of times today when exported they really are not waste. They are commodities. They are going direct, in many cases, to smelters and so on for example.

Large amount of resale of working equipment. It's very large. Hundreds of companies in the United States that are recyclers and that have some dismantling as well but hundreds are resellers are taking the cream of the crop equipment like laptops and things. They are being sold right out. Used laptops are sold across the world. There are an increasing number of excellent foreign facilities. Some of the best and most modern facilities in the world are now in Asia largely. Unfortunately some exports continue to go to unsound facilities, and that's what we need to fix.

Recycling markets for circuit boards. There is only 5 smelters in the world. There are 5 in the world that can handle the plastics in circuit boards basically in a smelting operation that can derive the copper and precious metals, and have the proper pollution control devices to deal with the potential formation of dioxins and furans. Canada, Belgium, Sweden, Germany, and Japan are the 5 smelters. Obviously circuit boards have to move around the world in an efficient way. There are smaller refiners around the world including in the United States. Computer products, computers and so on, yes there are some precious metals, but it's generally at very low levels. So the smaller refineries that are present in the United States are handling higher value precious metal materials, not circuit boards from computers and faxes and printers that we're talking about.

CRT glass. There are about 15 furnaces remaining in the world, all of which are in Asia. In South Korea, Malaysia, India, Thailand, and China for example. The number of furnaces, as has been said, continues to

shrink rapidly. In the last 2 years there's probably been a closure of 6 or 8 of them around the world. Demand remains strong for CRT glass. How long it will last? Who knows? Maybe it's 5 to 10 years. Those furnaces that remain have a very strong demand for CRT glass, especially sorted and cleaned glass because they have huge energy savings. As the price of oil has gone up and up, their demand for CRT has gone up because they're saving money using that rather than virgin materials to create new CRT glass. Exports to Canada for smelting have been increasing. There's a smelter in New Brunswick, so over the last 2 years or so our exports to that smelter have increased as well.

Regarding international rules for electronics around the world, as I mentioned there are two treaties that apply to Mexico, the United States, and Canada because all 3 are parties to the OECD. The U.S. is not a party to the Basel convention, but we do actively participate with Mexico and Canada who are parties to the Basel Convention.

Let me talk about the OECD. There are 30 OECD countries, mostly developed countries: the 3 North American countries, Western and Northern Europe, Australia, Japan, and South Korea. The OECD has a control system for the movement of hazardous waste. It is a more streamlined control system allowing hazardous waste as defined by the OECD to move amongst OECD countries for trade purposes. It is a notice and consent system. This is hazardous waste. Basel has one too. It is more streamlined than Basel. It is a sub agreement under the Basel Convention as well, but it's meant to facilitate trade as well as control it and be transparent in its trade. The OECD also has a voluntary program or guideline program related to environmentally sound management. So in addition to the mandatory control system that I had in the previous slide, that's what's used for trade in hazardous waste amongst OECD countries. For the most part that does not mean electronics. CRTs, yes, if they are moving amongst OECD countries they would move as hazardous waste. The U.S. has an agreement with Mexico, and that overrides the OECD. So it's a different system there.

The OECD system for environmentally sound management, the guidelines cover a wide array of waste and scrap, not just electronics but all sorts of waste and recyclables. This particular program and guidelines are not mandatory, but countries and the U.S. is the process of reporting to the OECD on its progress in implementing the OECD guidelines on environmentally sound management. So that process is just beginning in terms of every one of the 30 countries, including Mexico, must report progress towards achieving environmentally sound management according to the OECD guidelines. It encourages the use of 3rd party certification. We had a panel earlier on certification so this is one of the driving forces for that kind of an effort for the U.S. government anyway.

There are 2 types of voluntary guidelines under the OECD: 1 is core elements for facilities [and we'll go over those very briefly], as well as some detailed waste stream specific guidelines on the recycling of personal computers in the reuse and recycling of them. I believe when Rick puts the CD together with the presentations, he's also going to include on there these guidelines on the recycling of personal computers for OECD. Core elements, these are the essential elements to having a responsible waste management facility or recycling facility under the OECD.

What we'll see here very quickly is the same kinds of things that every one of these certification programs, for example, Greg talked about elements in his document or their company's efforts related to lamp recycling, you'll see the same common kinds of things about what is a good recycler. A good recycler needs to do the following kinds of things: needs to be properly authorized and licensed, having all the appropriate permits and licenses [that's been said several times today], having environmental management system in place [that's very important], and in addition facilities should sufficiently protect their workers and environment, have adequate monitoring and record keeping reporting, have an adequate training program, emergency plans, and closure plans. So those are the essential elements that the OECD laid out 4 years ago. Regarding the 2nd tier of guidelines by the OECD, the more detailed guidelines, this is a document that was written and I was a primary author of for the OECD for recycling and reuse of personal computers. It addresses the different types of personal computers, printers, and peripherals. It takes materials management focus.

So here we have an international organization, the OECD, with 30 fairly developed countries, but because every one of those countries has some differences in the way that it classifies these materials or wastes, this takes a materials management approach. Because we know we're not all going to agree amongst countries all these definitions as to what is a waste and what is hazardous waste. We all have different approaches.

So let's put that aside and let's talk about what is the right thing to do. How do you protect your workers? How do you handle these things properly? How do you dismantle them properly? Let's not get caught up in the legal definitions. So this document takes the materials management approach and says "let's talk about the right thing to do and not get hung up on definitions." The document, just like the whole OECD approach including the hazardous waste control system, is risked based. So refurbishment facilities, companies that are involved in repairing and refurbishing computers or other electronics are clearing creating much less risk to their workers and the environment than those that have shredders and especially smelting operations. So the worker safety and environmental considerations are much less, therefore they don't need to be permitted in the same way. They don't need to be controlled in the same way as the much more intensive operations such as refining and smelting. These guidelines address the proper ways to manage, process, handle circuit boards, batteries, capacitors, cathode ray tubes like we talked about, the phosphorus on the panel glass as well, leaded glass and how to handle that, flat panel displays, laptops, insulated wire, plastics. It provides fairly detailed guidelines in all of those areas.

The Basel Convention. The OECD control system basically applies to these 30 countries which is largely a subset of the 170 countries in the Basel Convention, but because it addresses 170 countries many developing countries, this is really the most significant international treaty on controlling hazardous waste. This system is quite different than the OECD in a way, importantly in that it's intended more to prevent the dumping of hazardous waste on developing countries. The OECD system more developed countries; they are more thinking about trade between the countries. The Basel Convention's objective is very laudable obviously to prevent dumping on the developing countries. The Basel control system is not risked based. If you have any amount of lead or dozen of things than you are presumed to be a hazardous waste under the Basel control system unless you test or make sure that it doesn't have a characteristic such as a toxicity characteristic. The presumption is if it has a molecule, that's an extreme, but there is no de minimus level. Any amount of many constituents then it should be presumed to be a hazardous waste. So it's pretty onerous thing, but again the goal is to protect the developing countries. Not all OECD countries are parties to the Basel Convention cannot legally accept hazardous waste. So if they define it as hazardous waste then they are not supposed to legally accept that because they are party to the Basel Convention and because the U.S. is not. Unfortunately some of the countries don't always behave that way, but as I said earlier in the presentation, we do not define many of the electronics as hazardous waste. Some other countries may, and it's up to them to implement their own requirements. The Basel definition of hazardous waste differs very significantly from the United States. I talked about exclusion and exemptions earlier in the day. The Basel Convention doesn't have any of those. It's not risked based and there's no de minimus and all those things are quite different than the way the U.S. approaches it. For electronics, Basel applicability is often unclear. Unfortunately, the most unclear listings in the Basel Convention pertain to electronics. A few years ago, I was in China for a meeting with a number of Asian countries, and the Indians were there saying that these listings were absolutely useless. They really are not very helpful. Unfortunately the electronics area is the most unclear area about the Basel Convention, and obviously the electronics area is one of the more complex areas because of the so many different constituent materials that go into, as well as some toxics, that go into any electronic product.

The other area that's very difficult and very unclear in the Basel Convention that's unique to equipment, and not just what we call e-waste, but equipment of all types, is the whole area of reuse, repair, and refurbishment. The hazardous waste regulations of the world, including the Basel Convention, were really written, and the Basel Convention goes back to 1989, at that time, e-waste/electronics was not a large issue. The real issue was the dumping of industrial toxic chemicals in some of the developing countries and so on. So the world has changed. What we now have with equipment, including IT equipment and so on, is that we have equipment and components that are being remarketed and reused. So the question is: does the Basel Convention cover reused, repaired, and refurbishment? It's very different than the dumping of sludge, solvents, and that sort of thing around the world. What we would like to see is the Convention adapt to that. I'll talk more about that shortly.

The rules regarding import and transit vary greatly around the world as well. Every country has its own definitions, and they apply things differently. The U.S. rule, I mentioned that we're not part of the Convention, we actually do participate in the Convention more than many countries and we provide more funding to the Convention than most countries, but we are not a party so therefore our work is technically consulting basically.

For your curiosity, why aren't we a party to the Convention? There are two issues that have held up ratification through the years, one of which was largely dealt with finally in 1999 when two waste lists were created in the Convention. So for the first 10 years of the Convention, there was really no definition of what a hazardous waste is under the Convention, certainly no list or examples. So it was very unclear to the U.S., and we were very concerned about the ability to move raw materials/recycled materials and so on around the world. So a great deal of clarification was made in 1999 with the 2 waste lists. One basically covered hazardous waste and non-hazardous waste. Unfortunately, as I said, the grayest areas there are on electronics. The other issue is, an amendment was passed in the early '90s or signed anyway, that would provide a ban on trade of hazardous waste from OECD countries to non- OECD countries. This would be an absolute ban. So for no purpose could anything covered under Basel move from the United States or another OECD country, let's say Asia for example. Well, most of manufacturing as we said is done in Asia, and these materials have to move. CRT glass is an example. The only remaining furnaces in the world are in non- OECD countries with the exception of Korea which has a furnace or 2 left basically. If we're going to recycle them anywhere in the world, they have to move to some of these countries. The Basel Convention is very focused here since the last 3 or 4 years. There has been an increasing focus on the Basel Convention just like there is around the world generally on e-waste/electronics.

The major activities of the Convention now are related to partnerships with industry. For 4 years now there's been a partnership with the mobile phone/cell phone industry, both manufacturers and network providers. That has resulted in some very good technical guidelines being written on the design of mobile phones, collection, refurbishment, and recycling. If anyone is interested in getting access to that, I could help you with that.

Again, we talked earlier about due diligence and EMS. Those are the 2 essential elements to any good recycler basically. Some form of an Environmental Management System and good downstream due diligence. Still, even in this exercise, these efforts with these multi-stake holding partnerships, principally bringing industry in closer to the Convention and working closely with them. The NGOs are involved as well. Repair, reuse, refurbishment remains the big issue. Does the Convention have the authority for hazardous waste to address the reuse of equipment? There is currently planning on going, there will be quite a bit of planning happening now and next June related to a computer partnership. So there will likely be a new partnership on the reuse, recycling, refurbishment of computers.

Let me end in saying, I mentioned earlier that where the U.S. would like to see the Convention move, coming out of that first partnership on mobile phones. We pushed pretty hard in that effort that the Convention really needed to look at innovative approaches for electronics in general. But because cell phones were the first form of electronics to really be intensively looked at, that's where these issues arose. They arose on reuse and refurbishment for example. Should there be a little different approach? There was a paper written during that effort that discusses that there may be a need for the Convention to evolve somewhat and look at some different approaches for mobile phones as well as other electronics. This paper has been developed. It's being looked at, although it sat around quite a bit for the last 2 years. It is still active, and the U.S. strongly supports the consideration of this so called chairman's paper that raises issues and options for the Convention to consider taking more innovative approaches as it relates to controlling the movement of electronics around the world. Adding transparency to that movement, how to deal with reuse and that sort of thing.